ABSTRACT

An optical communication network system and a wavelength-routing device and a communication node therefor are provided which can easily increase the optical paths between communication nodes, which are capable of expanding transmission capacity, and which excel in flexibility and expandability. An optical signal within a wavelength band ($\lambda B_m \pm \Delta\lambda_m$) which has been transmitted from a predetermined communication node (200-1 through 200-4) is subjected to wavelength-band demultiplexing of the wavelength bands by wavelength-band demultiplexers (220-1 through 220-4) of a wavelength-routing device (210), and is then subjected to wavelength-routing by arrayed-waveguide gratings (241 through 244) according to the wavelength bands, and furthermore is multiplexed with optical signals of other wavelength bands by wavelength-band multiplexers (230-1 through 230-4), and after having been outputted, is transmitted to a communication node. In this manner, by varying the wavelength band ($\lambda B_m \pm \Delta\lambda_m$) of the wavelength of the optical signal which is transmitted from the communication node, it becomes possible to establish a single optical path between the communication nodes for each wavelength band.